

Scientific Note

FIVE SPECIES OF *EMPICORIS* WOLFF FROM *CORYLUS* *CORNUTA* AND *CORYLUS AVELLENA* IN OREGON (HEMIPTERA: HETEROPTERA: REDUIVIIDAE)

The genus *Empicoris* Wolff was described from Europe in 1811 based upon *Cimex vagabundus* L. (Fieber, F. X. 1860–1861. Halbflügler (Rhychota Heteroptera). Wien. pp. 1–112, 1860, 113–444, 1861, 2 plates). It occurs in the Old and New World where these tiny predators are found on trees and shrubs. One of us (K.W.) conducted a survey of cultivated (*Corylus avellana* (L.)) and native hazelnuts (*Corylus cornuta* Marsh.) in western Oregon in 1998 via beating. Hemiptera: Heteroptera and Coleoptera were collected on a regular basis through the season at 6 localities where the native species grew in close proximity to the cultivated species. The broader aspects of this study by K.W. are being prepared for publication elsewhere.

Five species of *Empicoris* were collected during this effort: *E. culiciformis* (De Geer), *E. errabundus* (Say), *E. pilosus* (Fieber), *E. rubromaculatus* (Blackburn), and *E. vagabundus* (Linnaeus). Only *E. errabundus* is native to North America; the others are non-indigenous to United States and Canada. *Empicoris errabundus* was found on both *Corylus avellana* and *C. cornuta*, while all other *Empicoris* were taken only on *C. cornuta*. *Empicoris pilosus*, *E. rubromaculatus*, and *E. vagabundus* have not been reported from Oregon previously (Wygodzinsky, P. 1966. Bull. Amer. Mus. Nat. Hist., 133: 1–614; Froeschner, R. C. 1988. pp. 616–651. In Henry, T. J. & R. C. Froeschner (eds.). Cat. Heteroptera, Brill, Leiden) One additional species, *E. orthoneuron* McAtee and Malloch, was reported from southwest Oregon by Wygodzinsky (1966) but was not recovered in this study on *Corylus*.

Wygodzinsky (1966) revised the Emesinae (Reduviidae) of the Western Hemisphere, and included all species of thread-legged bugs known to occur in the New World. Although the publication contains chiefly taxonomic work, it does include a section on biology. All stages of these insects feed on small, soft bodied arthropods on the substrate where they occur. Because of their small size, slender bodies and slow movement, they are often overlooked in the habitats where they occur. Recently, Southwood (Southwood, T. R. E. 2000. Entomol. Month. Mag., 136: 149–152) reviewed the species of *Empicoris* in Britain.

Of special interest are the specimens taken of *E. pilosus*. Described from Europe, it was first reported from North America by Banks (Banks, N. 1912. Psyche, 19: 97) as *Ploiariodes hirtus* from Vermont, a species later synonymized with *E. pilosus* and considered a variety of *E. vagabundus* by McAtee and Malloch (McAtee, W. L. & J. R. Malloch. 1925. Proc. U.S. Nat. Mus., 67: 1–153). Blatchley (Blatchley, W. S. 1926. Nature Publishing Company, Indianapolis) considered *E. pilosus* to be a distinct species, a decision followed many years later by Wygodzinsky (1966), who recorded it from “B.C., Mass., Mich., Pa., Vt, and Wisc.” Larochelle (Larochelle, A. 1984. Punaises terrestres du Quebec. Fabriques, Supl. 3) published on its occurrence in Quebec. Most recently, Putshkov and Putshkov

(Putshkov, P.V. and V.G. Putshkov. 1996. Cat. Heteroptera Palaearctic Reg. Vol. 2. Cimicomorpha, Wageningen, The Netherlands) stated that the “*forma pilosus* (Fieber) is more common than the typical one in regions with milder climates. . .” It is clear that the identity of this species is yet to be resolved completely.

Butler (Butler, E. A. 1923. A biology of the British Hemiptera: Heteroptera. H. F. and G. W. Witherby, London) gave an account of the nymph, life cycle, and habitats [under the name *Ploiariola vagabunda* (L.)]. He stated of the nymphs, “. . . hairs on legs and antenna curved, and much longer than in adults,” and added that the pale body of the nymph was covered by black spots—both distinctive characters of this species. Hazel was one of the “host plants” as recorded for *E. pilosus* in the United Kingdom. The occurrence of these distinctive nymphs from the *Corylus* trees first alerted us to the presence of this species here in Oregon. Eventually, several adults were taken—also with very long setae on the legs and antenna and pale in color, agreeing with an adult from British Columbia in the collection of Oregon State University and differing from specimens of *E. vagabundus*. A single distinctive nymph of this species was found in the collections of Oregon State University with the following collection data: Oregon. Benton Co., Corvallis, 28-IX-1976.

While considered by some to be a synonym of *E. vagabundus*, from our observations it appears that *E. pilosus* is a distinct species since *E. vagabundus*, too, was collected at the same time in the sampling on *Corylus* and specimens were distinct from *E. pilosus*. Following Wygodzinsky (1966), we considered it to be a valid species.

The remarkable number of species of *Empicoris* found on *Corylus*, mostly non-indigenous, seems unusual. Many introduced species of insects often become pests, but in this case, it appears that some may be a beneficial addition to the predatory guild of Hemiptera: Heteroptera now found on cultivated hazelnuts and other crops in western Oregon.

Acknowledgment.—We thank the Oregon Filbert Commission and M. T. AliNiazi for their interest and assistance, and L. Parks for careful attention to the preparation of the manuscript.

John D. Lattin, *Department of Entomology, Oregon State University, Corvallis, Oregon 97331-2907*; and Karen Wetherill, *Sevilleta Long-Term Ecological Site, Department of Biology, University of New Mexico, Albuquerque, New Mexico 87131-1091*.

Received 28 Nov 2000; Accepted 14 Jan 2001